

Claims

- 1 ✓ A process for the manufacture of a filtration medium, which process comprises
- 5 a) transferring uncharged fibres to an air-laying apparatus;
b) air-laying the fibres onto a support so as to form an electrostatically-charged non-woven web in the form of a single layer; and
c) drawing the web from the support.
- 10 2. A process as claimed in Claim 1, wherein the air-laying apparatus comprises a rapidly rotating cylinder or roller clothed with teeth.
3. A process as claimed in Claim 2, wherein the rapidly rotating cylinder or roller clothed with teeth interacts with other toothed rollers or fixed carding plates.
- 15 4. A process as claimed in Claim 1, wherein the air-laying apparatus comprises a sifting screen or rotor device in which fibres are circulated over a mesh screen.
- Sub A1 20 5. A process as claimed in any one of Claims 2 to 4, wherein during air-laying the fibres are dispersed in a moving air stream to form an air/fibre mixture.
6. A process as claimed in any preceding claim, wherein the fibres comprise a blend of fibres of two or more types of fibre.
- 25 7. A process as claimed in Claim 6, wherein the blend comprises comprises (a) a polyolefin and (b) an addition polymer comprising one or more halogen-substituted hydrocarbons.
- 30 8. A process as claimed in Claim 7, wherein component (a) is polypropylene and component (b) is polyvinylchloride and/or polyvinylidene chloride.

Sub A²

9. A process as claimed in Claim 7 or Claim 8, wherein the blend further comprises a modacrylic copolymer comprising from 35 to 85 weight percent acrylonitrile units and having the balance made up substantially of other addition polymer-forming units, being halogenated hydrocarbon such as vinyl chloride or vinylidene chloride.

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10. A process as claimed in any one of Claims 7 to 9, wherein the weight ratio of component (a) to component (b) is in the range 70:30 to 30:70.

- 10 11. A process as claimed in Claim 10, wherein the weight ratio of component (a) to component (b) is in the range 45:55 to 55:45.

Sub A³

12. A process as claimed in any one of Claims 7 to 11, wherein the linear density of the fibres in component (a) and component (b) is in the range 0.1 to 10dtex.

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13. A process as claimed in Claim 12, wherein the linear density of the fibres is less than 3.3 dtex.

Sub A⁴

14. A process as claimed in any preceding claim, wherein the fibres have a diameter of 12µm or less.

15. A filtration medium consisting of a single layer of a non-woven web of fibrous material, said web having a ratio of the tensile strengths of the web in the machine and cross directions (MD:CD), ie the longitudinal and transverse directions of the web, of less than 2:1.

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16. A filtration medium as claimed in Claim 15, wherein the MD:CD ratio is less than 1.5:1.

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Sub A⁵

17. A filtration medium as claimed in Claim 15 or Claim 16, wherein the web comprises a blend of fibres of two or more types of fibre.

18. A filtration medium as claimed in Claim 17, wherein the blend comprises (a) a polyolefin and (b) an addition polymer comprising one or more halogen-substituted hydrocarbons.

5 19. A filtration medium as claimed in Claim 18, wherein component (a) is polypropylene and component (b) is polyvinylchloride and/or polyvinylidene chloride.

Sub A 10
20. A filtration medium as claimed in Claim 18 or Claim 19, wherein the blend further comprises a modacrylic copolymer comprising from 35 to 85 weight percent acrylonitrile units and having the balance made up substantially of other addition polymer-forming units, being halogenated hydrocarbon such as vinyl chloride or vinylidene chloride.

15 21. A filtration medium as claimed in any one of Claims 18 to 20, wherein the weight ratio of component (a) to component (b) is in the range 70:30 to 30:70.

22. A filtration medium as claimed in Claim 21, wherein the weight ratio of component (a) to component (b) is in the range 45:55 to 55:45.

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Sub A 7
23. A filtration medium as claimed in any one of Claims 18 to 22, wherein the linear density of the fibres in component (a) and component (b) is in the range 0.1 to 10dtex.

25 24. A filtration medium as claimed in Claim 23, wherein the linear density of the fibres is less than 3.3 dtex.

Sub A 8
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25. A filtration medium as claimed in any one of Claims 15 to 24, wherein the fibres have a diameter of 12µm or less.

26. A filtration medium as claimed in any one of Claims 15 to 25, which has a weight of from 200g/m² to 1000g/m².

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27. A filtration medium as claimed in Claim 26, wherein the medium has a weight of 350-500g/m².

sub A 9
5 28. A filtration medium as claimed in any one of Claims 15 to 27 which comprises a blend of fibres selected from the group consisting of

- a) Polyvinylchloride / Polypropylene;
- b) Polyvinylchloride / Modacrylic / Polypropylene;
- c) Polyvinylchloride / Polypropylene / Polyethylene; and
- d) Polyvinylchloride / Modacrylic / Polyethylene.

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